

Evolution and the Future of the Human Race.*

BY

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Professor Huxley, the apostle of scientific education, in one of his most inspiring addresses,† compares the life of a human being to a game of chess. "The chess-board is the world, the pieces are the phenomena of the universe, the rules of the game are what we call the laws of Nature. The player on the other side is hidden from us. We know that his play is always fair, just and patient. But also we know, to our cost, that he never overlooks a mistake, or makes the smallest allowance for ignorance. To the man who plays well, the highest stakes are paid, with that sort of overflowing generosity with which the strong shows delight in strength. And one who plays ill is check-mated—without haste, but without remorse."

Huxley tells us that what he means by Education is learning the rules of this mighty game. This is indeed a formidable task but fortunately it is not necessary to accomplish it in its entirety before we begin our play; obviously we must content ourselves with learning the rules as we go along and muddling through as best we may; otherwise the game could never begin. But what about the other player, who presumably knows all the rules of the game from the outset? What about his fairness in engaging an unfortunate opponent at such terrible odds? What about the end of the game and the invariable check-mating that then takes place? If we could withdraw the veil from this invisible opponent I suspect that we should find indeed no well-matched playmate but a stern schoolmaster, engaged in teaching a lesson that ends only with life itself.

There can be no doubt that there are plenty of lessons to be learnt. Exactly what these lessons are and what are the best methods of learning them none can say beforehand, we only find that out by more or less painful experience. Huxley tells us that the rules of the game are the "Laws of Nature" and it is sufficiently clear that the present well-being and future progress, not only of the individual but of the human race in general, must depend largely upon the extent to which these laws are understood and the use which is made of our knowledge of them.

The individual man, regarded merely from the point of view of his physical organisation, is undoubtedly inferior in some respects to many other animals, but at the same time there can be no doubt that human society exhibits the most complex type of organisation that

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† "A Liberal Education; and where to find it." Collected Essays. Vol. 8,

has yet made its appearance on the earth. There is abundant evidence to show that it has reached its present level through a slow and gradual process of evolution, but whether or not it has yet arrived at the zenith of its career it is impossible to say. The future lies in the lap of the gods and if we wish to influence it in any way, if we wish to divert the course of humanity from some possible catastrophe and to direct it to some hoped-for good, we can only do so by ourselves acquiring and exercising the divine attributes of knowledge and foresight.

We stand at a certain point on the great curve of evolution. Behind us it dies away in the mist and obscurity of the past, before us all is uncertainty, the curve has not yet been traced. A knowledge of its past course may, however, enable us to predict how it is likely to be continued and a further knowledge of the causes which have determined its form so far may even make it possible for us to guide it in the future. The more complete our knowledge the greater will be our power both of prediction and of active interference, and it is just this power which forms the chief distinction between mankind and the lower animals.

Let us then glance briefly at the past, not confining ourselves to the history of the human race as such but taking a broad view of the organic world as a whole, in order that we may see what are the general laws or principles to which the course of evolution has hitherto conformed.

If the complete succession of past events could be unfolded to us at enormously accelerated speed by some gigantic cinematograph, I suppose we should see something analogous to the flowing of a mighty river, but with the remarkable difference that, instead of being constantly swollen by the influx of tributaries, the stream would be constantly subdividing and branching out in all directions, more like a very complex system of irrigation channels, or a river with the flow reversed and running up hill from the sea to the mountains, while at the same time the material of which the stream was composed would be under going constant change of character.

The more familiar simile of the branching tree is in many ways preferable to that which I have suggested, but I wish to emphasise the idea of flow and change and especially the idea of progress in opposition to some restraining influence, such as takes place periodically in the tidal portion of an actual river.

There are few more fascinating occupations for an idle holiday hour than to stand on the sea-shore and watch the incoming tide. Each successive wave gathers itself together, advances and falls back. It accumulates a certain amount of energy, expends it in its advance and retires exhausted to make way for another. Unless it be a stormy day no particular wave accomplishes any great achievement, but each gets rather a better start and advances a little further than its predecessor, until the high-water mark is reached, when the whole process is reversed and the tide falls again to its former level.

Now if, in our imaginary cinema-show, we followed the course of evolution of any great branch of the animal or vegetable kingdom, we should see it exhibiting a rhythmical, wave-like progress not unlike that of the flowing tide. Each new advance reaches a culminating

point at which progress ceases and retrogression begins, while a new start is made from behind, and so, after all, progress is maintained at the expense of innumerable failures. Reverting to the analogy of the growing tree, we might say that each new branch arises, not from the apex, or even near the apex, but low down on the shoot which bears it; nevertheless it comes to overtop the parent branch in due course, and so the tree as a whole continues its upward growth.

Let us take a definite illustration of this great principle. The study of geology and palæontology has demonstrated beyond doubt that the great groups of the animal kingdom made their appearance on the face of the earth in exactly the order indicated by the position assigned to them by zoologists on the grounds of their anatomical structure. Comparative anatomists are agreed that the amphibians must have sprung from fishes, reptiles from amphibians, mammals and birds from reptiles; and the geological evidence demonstrates the truth of this conclusion. The amphibians, however, did not arise from highly specialised fishes such as those which dominate the seas to-day, but from primitive types which had discovered the secret of transforming the swim-bladder into lungs and the fins into organs of locomotion on dry land. Similarly the reptiles arose from primitive amphibia; not from the highly specialised frogs and toads, and birds and mammals arose from primitive types of reptiles.

The gradual evolution of the human race from a primitive mammalian ancestry marks the latest great advance in the animal kingdom, and it is one in which a new experiment is being tried, that of mental development on a scale never previously attempted. Already it appears, however, that even this mental development is not all-sufficing, but will have to be supplemented more and more by moral and spiritual development if progress is to be maintained in such a way as to satisfy the highest aspirations of the human race.

The history of civilisation only serves to emphasise the truth of the great law of evolution to which I have called your attention. Empire after empire has reached its culminating point and then given place to another, which, from small beginnings, has been able, in some respects at any rate, to reach a level not previously attained. Nor is it necessary to look to the past for illustrations of our thesis. We see the same principle operating to-day in the case of the succession of individuals which make up a species, or even a human family. The individual cannot start life where his father left off, though no doubt many would like to do so. As a matter of sober fact each one must, willy-nilly, go back almost to the very beginning and commence his existence as a single nucleated mass of protoplasm—a mere egg. Even so it is possible for each to get a rather better start than his parents and make rather more progress in his own life-time. They say, however, in my native county, that it is only three generations from clogs to clogs, though it may be anticipated that the second pair of clogs will be of somewhat better quality and rather more conducive to progress than the first.

Dean Inge, in his Romanes Lecture recently delivered at Oxford, tells us that “the belief in Progress, not as an ideal but as an indisputable fact, not as a task for humanity but as a law of Nature, has

been the working faith of the West for about a hundred and fifty years.' He himself, however, comes to the somewhat melancholy conclusion that this belief is a mere superstition. If he means by progress a continuous movement always in the same direction he is doubtless right, but surely in no other sense. The history of the human race, or of any other race, is merely the history of a succession of individuals, and the progress of the race does not cease because individuals become senile and die, nor even because one civilisation is replaced in the fulness of time by another.

So far as the inhabitants of our particular planet are concerned—and it would be a profitless task to attempt to extend our investigations further—it appears to me that the evidence of progress in conformity with a great general principle or law of nature is conclusive. Apparent exceptions of course there are. Exhausted lines of evolution not only cease to advance but may actually go backwards. Retrogression is common enough but it does not materially affect the general process by which progress is maintained.

So long as the earth continues to exist in anything like its present state—and its expectation of life seems to be greatly increased by recent physical discoveries—we have a right to hope that progress will continue, though it will probably not be without interruption.

Most of us who happen to belong to a highly organised social system and flatter ourselves that we are a good deal better than our less civilized neighbours, probably regard our own particular line of evolution as the true path of advance, but we may do well to ask ourselves whether that line is really tending to a desirable or even possible state of things. I cannot agree with Dean Inge that "progress is a sporadic and transient phenomenon in history," but I heartily sympathise with what he says about the kind of progress we are now making. We have got to change our ideals and cultivate a much truer sense of values if we wish to avert, or even postpone, the fate to which civilizations seem to be doomed. If progress consists merely in covering the face of the earth with railways and factories and destroying the peace of God with motor cars and aeroplanes, then indeed it hardly seems worth while to go on, and many of us might come to prefer a life of solitary contemplation in the wilderness to the society of our too-energetic fellow-men.

At present we seem to be rapidly approaching, if we have not actually reached, the climax of one great wave of evolution. The question is—can we, profiting by the experience of the past, use our knowledge to avert the hitherto inevitable set back?—assuming, of course, that it is desirable to do so.

In order to answer this question we must first of all endeavour to discover the causes which underly the great law of progress, to find out why evolution takes place in a wave-like manner and not in a continuous straight line. Here a purely physical analogy may help us. Suppose you throw a ball into the air. You impart to it a certain amount of energy and it rises to a certain height. In so doing it gradually expends its store of energy in overcoming the attraction of the earth which we call gravity. When the energy is all expended gravity prevails and the ball gradually falls, until it is finally brought

to rest by impact with the ground. Similarly, a living organism starts life with a store of initial energy which it gradually expends in overcoming resistances of various kinds. But the living organism has this advantage over the inanimate ball, that, for a longer or shorter time, it is able to make good its expenditure by absorbing energy from its surroundings, and, in the earlier part of its career, may in many cases even increase its store. Sooner or later, however, its energy will be exhausted, the opposing forces of the environment will prevail and the organism will come to the end of its career. It is the same with races as with individuals. They start by accumulating energy and go on until that energy is expended and they can find no fresh supplies. The turning point is reached when expenditure begins to exceed income. I have already quoted the saying of the shrewd Lancashire folk that it is only three generations from clogs to clogs. The father starts with nothing but his wits and makes the money, the son spends it and the grandson has to go back to work—which, after all, rich or poor, is the best thing he can do.

Every great advance in civilization has depended on the discovery of new stores of energy in one form or another, and men have soon acquired the habit of expending that energy more or less recklessly. Hitherto, however, supplies have not proved inexhaustible and reckless expenditure has always led to bankruptcy. To-day we are living mainly on the energy borrowed from the sun millions of years ago by the great forests of the carboniferous epoch and stored up in the form of coal. It is this alone that has rendered possible the great mechanical advances of the past century. It is being exhausted at an extravagant rate and when it is gone no man can say what will happen. We may be able to replace it by something else but at present it hardly seems likely that we shall find any other supply which is so readily exploited. The coal-consuming races will certainly have to adapt themselves to new conditions of life or go under.

The past history of the whole organic world teaches us that success depends upon adaptation to the environment, but if the adaptation of any particular race becomes so specialised as to result in loss of plasticity or, in other words, if the race becomes dependent upon the continuance of conditions over which it has no lasting control, then, when those conditions change, that race is doomed and opportunity is given to some less specialised and more plastic type to take up the running on new lines, gather fresh supplies of energy in its own way and repeat the cycle.

It is, however, not only the exhaustion of our reserves of energy and the changed conditions of life consequent thereon that we have to fear. We have to ask ourselves whether the accumulation of capital may not be carried too far, tempting us to expend our strength in self-destruction rather than in self-preservation. A man's fortune may prove a blessing or a curse to him according to the manner in which he makes use of it, and the same is true with regard to the state and the human race in general. During the past few years expenditure of all kinds has been taking place on an unprecedented scale and the chief progress we have made has been towards the destruction of Western civilization. We seem to have been doing everything in our power to

make it easier for the next great wave to advance and sweep us away.

To the eternal question—What can we do to be saved?—there is in this connection only one answer—educate ourselves; and this, I take it, is the conclusion at which the members of the Eugenics Education Society have long since arrived. But to carry this pious aspiration into effect is no easy matter. The time has gone by when even a Francis Bacon could take all knowledge for his province. We are in danger of suffering as much from a plethora of mere learning as from the excessive accumulation of potential energy of other kinds.

We have already seen that Huxley regarded education as being equivalent to learning the rules of the game of life, but there is a wide choice of games offered to us and a time comes for each when he has to select that which he is going to play and equip himself accordingly. Unfortunately, at this critical time, he is hardly in a position to make a satisfactory choice for himself and must perforce rely very largely upon the advice and experience of his elders, and the generous impulses of youth are too apt to be pushed aside by the calculating prudence of maturity, so that the pursuit of high ideals gives place to mere subordination to public opinion. Public opinion, however, is nothing more than the collective opinion of individuals and is itself capable of being rapidly modified as the result of education.

If we are to endeavour to improve our own individual lives and at the same time to shape the course of human evolution, our first duty would seem to be to discover what it is that makes life worth living, what are the ideals for which the citizens of a civilized state should strive. A distinguished philosopher and man of letters has recently reminded us that ‘we must not let go our main grasp of the values which, wherever brought into being in a world, so far make heaven of that place and time, and which all religion teaches us to cherish here and now as everywhere and always—love, beauty, truth. In these our unity is solid and plain—our unity with God and with the whole of being. We must not do anything to throw these into the background, and place our unity in remote events.’* I imagine there are few amongst us who will quarrel with this choice of ideals, although there will doubtless be much diversity of opinion as to how they may be attained, how we may best equip ourselves for the great quest.

We shall probably all agree that one of the most necessary items of our equipment will be physical and mental health—indeed, if we can secure that, it is hardly too much to say that all else will be added to us. The improvement of national physique and the promotion of national sanity are, I know, the ultimate objects of your Society, and it would be difficult to find objects more worthy of your attention. In this connection the answer to the question—what can we do to be saved?—is becoming every day clearer and more emphatic. The national conscience—a very heavy sleeper—is being awakened to the necessity of improving the conditions of life for the great mass of the people. The question of housing accommodation has at last passed the stage of discussion and entered upon that of action. The

* Bernard Bosanquet: ‘What Religion is’ (Macmillan & Co., Ltd., 1920).

health of the children, the conditions of labour and the recreation of the workers are at length receiving the attention which they ought to have received long ago. More important still, perhaps, we are beginning to realise the responsibility that rests upon us for the health of future generations, and it is in this particular direction that your Society seems likely to do its most important work. The knowledge that has been gained by patient biological investigation during the last fifty years seems likely to bear fruit abundantly in the near future. Even the little that is already known of the laws of heredity may be sufficient to guide our footsteps in the right path and enable us to avoid many pitfalls. But the teachers can only point the way, the human race will not be driven to salvation. We can only educate; public opinion is more powerful than legislation, and if legislation in certain respects should prove to be desirable it can only come as the result of conviction.

The human race to-day, bound together ever more closely by the ties of civilization, is one great organism, but in spite of our much-vaunted progress we have not yet emancipated ourselves from the laws of nature, nor can we expect ever to do so. In our onward course we free ourselves from one restraint only to subject ourselves to another. The sanctions of morality, without respect for which no civilized community could continue to exist, replace the laws of the jungle. It has always been so, every step in advance throughout the whole history of the animal kingdom has brought with it new obligations, which must be fulfilled under pain of death. Every addition to the complexity of the organism makes the preservation of its life more difficult. Many of the lower animals can be cut into little pieces without suffering permanent injury. Even creatures so high up in the scale of organisation as the common newts of our ponds and ditches can regenerate their limbs as often as you like to cut them off, an achievement which, unfortunately, it is beyond the power of the most skilful surgeon to effect in the case of the human body.

The welfare of the organism as a whole depends upon perfect harmony and co-ordination amongst its constituent parts, and society, like every other organised body, begins to disintegrate as soon as that harmony is disturbed. In other words, the adaptation of each part to all the rest represents a law of nature from which there is no exemption.

The evolution of every form of civilisation tends to bring with it enumerable disharmonies, and to forestall or reconcile these should be the task of the politician; but unfortunately the politician is often actuated by far different motives and even if he were not he is usually much too ignorant of the laws of nature to play the part of a successful physician.

We can never emancipate ourselves from these laws, but, on the contrary, the laws themselves become more complicated and more difficult to understand as the game progresses. Education alone can help us, or at least reconcile us to the inevitable, and the study of biology, which is merely another name for the study of life, is, perhaps, that part of education which can help us most.

Take, for example, the law of work. If, instead of endeavouring to escape from it, we once realised that work and life are the same thing we might get on much better in a world of toil. Every organism, consciously or unconsciously, works for its living and dies the moment it ceases to work. What we have to do is to see that the work is of the right kind and compatible with a reasonable amount of enjoyment. Probably, amongst the lower animals, work, life and enjoyment are all pretty much the same thing, for all consist in the exercise of the bodily functions.

Man, however, is the animal that thinks, and by thinking he has introduced into his life possibilities of both pleasure and pain far beyond those that bless or curse his humbler relatives. He has dropped the pilot, and, to a large extent, taken over the control of his own destinies, and thereby incurred responsibilities and anxieties from which the lower animals are free. In endeavouring to get the utmost possible out of life, however, he is apt to overlook the true nature of the stakes for which the game is played. You can play any game in one of two ways, either for love or for money. If you play for love you expect no reward beyond the joy of playing to the best of your ability; you realise that the stakes are paid as the game progresses and that work and happiness are not necessarily incompatible. If you play for money, or for any other reward payable at some future date, either in this world or another, you may find the game ended and the lights out before you have even added up your score.

If mankind can by any means be persuaded that love, truth and beauty are stakes that are better worth playing for than motor cars, cinematographs and social distinctions, we need have little fear of serious disharmonies in the social organism.

Education alone can do it, but it must be education of the right kind, and, above all, the cultivation of a true sense of values. It is useless merely to tell people that certain things are more desirable than others, they must be encouraged to convince themselves by their own experience that it is so. At present education has only gone far enough, with the great masses of the people, to make them question the foundations of the religious beliefs and moral codes by which society has hitherto been held together. They are beginning to exercise their own judgment, and to reject cant and hypocrisy of every description. They will no longer be driven by authority but must be led by sympathetic intelligence. They must be shown reason for the restraints and disabilities to which all members of the community are subject, and convinced that happiness is a question of work rather than of wages. They must learn that in this world there is no such thing as equality, that men and women inherit with their bodily organisation different potentialities, but that, while it will always be impossible to make a silk purse out of a sow's ear, there is no legitimate reason why every individual should not be given the opportunity of making the most of his own particular talents.

Truly a great task for education to perform, but perhaps not an impossible one. Its performance, and the re-establishment of social harmony which it is to be hoped may result therefrom, will involve the scrapping of much that civilisation has encumbered itself with to

little purpose, but, if we can reconcile ourselves to this, civilisation may for once be able to make a fresh start without sacrificing anything that is of vital importance.

Fortunately the power of scrapping is ours to exercise if we will, and in this respect we have the advantage over many of our predecessors in the struggle for existence. The giants of the past, mere tons of flesh and bone, without a ray of intelligence to guide them, could never rid themselves of their vast accumulations so as to compete successfully with their more active rivals. The mechanisms upon which we chiefly, but perhaps unnecessarily, depend as civilised beings are however no longer parts of our own bodies; and if they prove an encumbrance rather than an aid to progress we can cast them from us. The future of the human race will depend largely upon how far we have the courage to do so.

Many of you are doubtless familiar with Samuel Butler's brilliant novel "Erewhon" and will remember how the enlightened Erewhonians destroyed all their machinery for fear it should get the upper hand, and returned to the simple life. We have approached much more nearly to the dreaded slavery to mere mechanism than ever the Erewhonians did and may well ask ourselves how much further it is safe to go. Are the advantages of living in the age of steam, steel and electricity sufficiently great to justify the employment of hundreds of thousands of men in laboriously digging coal from the bowels of the earth, or the disfigurement of vast areas of once beautiful country by slag heaps and railway tracks, or the herding together in the slums of our great cities of millions who ought to be living in healthy homes scattered over the countryside? Is it really more advantageous to be driven to our work like so many sheep in over-crowded and fœtid underground tubes, than to walk in the open air? Is it better for our physical and moral well-being to spend our leisure time in gin palaces and crowded theatres rather than in exercising our bodies and cultivating our minds in healthy and beautiful surroundings? Have we the opportunity of making proper use of our physical and mental equipment and developing such faculties as we possess, under existing conditions of civilised life? How many people to-day can derive real satisfaction from their work and find in it encouragement and opportunity to pursue high ideals?

It is largely the want of such satisfaction and opportunity that leads to the feverish unrest which is the chief symptom of social disease and from which no class of society is exempt. This unrest shows itself in extravagance of all kinds—religious and political, mental and moral—and affords the opportunity for quacks and faddists of every description to foist their nostrums upon society and make matters worse.

If education is to save us it must be real education, founded upon truth and seeking for truth, and the work of teaching must be entrusted to those who have proved themselves properly qualified to undertake it. Perhaps the most important thing to be taught at the present day is still the old lesson that there is no royal road to learning and that true wisdom can be attained only by strenuous exertion and the proper use of all the means with which we find ourselves provided.

One of the most serious symptoms of our own times is the widespread belief that knowledge can be achieved without education and without effort. Many people seem to think that it is possible for it to be evolved out of their own inner consciousness or to be received through some kind of revelation. They utterly fail to distinguish between truth and imagination. The other day I happened to come across a publication containing what professed to be a serious account of the properties of various flowers on the astral plane—whatever that may be. It was a farrago of unmitigated nonsense, valueless even as a work of imagination. There are infinitely more wonderful and beautiful things to be learnt from the study of botany, but that, of course, would take both time and trouble and demand a reasonable amount of intelligence.

There have always been plenty of people ready to tell us all about the next world, but who could tell us very little about the one we actually live in, the one with which it ought to be our first duty to make ourselves thoroughly acquainted. Unfortunately such people are never able to see their heaven or their hell save through earthly spectacles. Our bodies and our minds alike are adapted to the conditions of terrestrial existence. We have no basis of experience upon which to construct any ideas as to the nature of a possible future in some other sphere and so our prophets have still to content themselves with a geomorphic heaven presided over by an anthropomorphic deity—a mere reflection of their earthly environment.

Of course there are many excellent folk who will never be brought to submit themselves to the limitations which the scientific attitude imposes they thirst for knowledge but cannot see the necessity for learning. They would pluck the fruits before they have even planted the tree. Take, for example, the present mania for so called psychical research, one of the most deplorable results of the late war and a social disease of the first magnitude. I have nothing to say against legitimate investigations undertaken in a scientific spirit by properly qualified investigators, but the vast majority of those who dabble in this subject are, it is to be feared, little better than so many inquisitive children turned loose amongst the unknown and dangerous contents of a chemical laboratory, with little or no appreciation of the risks they run or the precautions that should be observed in conducting their experiments.

The investigation of psychical phenomena is no doubt a deeply interesting and a very important task but it is a peculiarly hazardous one, so much so that an eminent specialist in mental diseases, the late Dr. Mercier, has warned us very clearly that that way madness lies. Nor is he by any means the only one who has lifted up his voice against the prevailing craze.

The human brain, through which the mind works, is an instrument complex beyond our powers of analysis, and it is not to be wondered at that it gets out of order perhaps more frequently, or at any rate with more serious consequences, than any other part of our bodily equipment. It is especially liable to lead us astray when it is set to achieve tasks which it is incompetent to perform simply because their accomplishment must depend upon a far more intimate knowledge of its own workings than we are likely to possess for a long time to come.

The man who pays too much attention to the working of his liver or his heart is likely to become a confirmed valetudinarian and I suppose he who thinks too much about the operations of his own brain is no less likely to bring upon himself serious mental disturbances; and yet unless he probe his mind to its most intimate recesses he can be in no position to form a judgment as to the true nature of any so-called psychical phenomenon with which he may be confronted.

If investigate we must, let us at least arm ourselves beforehand with the best weapons we can lay our hands on. Let us, above all, study the laws of evidence and the science of mental diseases; we shall then very soon learn how great are the possibilities of self-deception and what startling aberrations the mind is capable of, and come to distrust everything that runs counter to the experience of the vast majority of our fellow men.

I fear that I have allowed myself to stray into a very controversial subject, but the future of mankind can hardly be discussed without touching upon it. It may well be that the human mind, seeking to penetrate an environment, real or imaginary, to which it is not adapted, may pass the zenith of its upward progress and enter upon a period of fatal retrogression.

It is even possible that under such circumstances mankind might return to the dark ages of superstition, with all the accompanying horrors of witchcraft and sorcery from which we hoped that the advance of science had finally emancipated us, but which, like the horrors of war, might be only intensified by the misuse of the weapons which science herself has placed in our hands.

I cannot think, however, that civilisation is going to allow itself to be destroyed in any such fashion. I believe rather that science and education will again come to the rescue and enable us to inaugurate a new era of rational progress, in which psychology will replace occultism as the chemistry of to-day has replaced the alchemy of our forefathers, absorbing from it all that is of permanent value and rejecting the worthless and dangerous dross.

It is useless for us to attempt to solve any of the great problems of life unless we are prepared to undergo the necessary preliminary training and submit ourselves to the discipline involved therein. Individual effort has always been one of the main factors, if not *the* main factor, in progressive evolution. It may, in the earlier stages, have been entirely unconscious, but we know nothing whatever about the consciousness or unconsciousness of the lower animals. I find it hard to believe that evolution has ever been a matter of blind chance and in the case of the human species no one can deny that effort is the mainspring of progress.

As I said before, we have, by virtue of our highly developed mental faculties, taken over the control of our own destinies, and if we are not to bring ourselves to irretrievable ruin we must see to it that our efforts are properly directed. Moreover, it is no longer merely individual effort with which we are concerned but collective and co-ordinated effort and that makes the problem infinitely more complicated and difficult. The welfare of the individual members is inextricably bound up with that of the community as a whole, and if any section

of the community suffers all other sections must, sooner or later, be adversely affected. In this respect human society is closely comparable to the individual body, which is itself a community of cells and organs. In the lowest organisms each cell is independent of all its fellows and has no responsibilities towards them. One of the first steps in evolution was the combination of cells to form units of a higher order; in which each became subordinated to the whole. In this way, by co-operation, differentiation and division of labour, a much fuller and more complex life was attained, but the advance was rendered possible only by the sacrifice of their individuality as the part of the constituent units. The cells became mutually dependent, some performing one duty, some another, but all equally important for the corporate existence. It is the old story of the body and its members, which seems to have been strangely forgotten of late. You cannot have a body which is entirely made up of brain, with nothing for it to control or direct, or of stomach with nothing to obtain food for it and nothing to feed but itself. So also you cannot have a civilized community which is entirely made up of one kind of individual. You must have manual workers and you must have mental workers and the two classes must be more or less differentiated in accordance with the different functions that they perform. There must be leaders and there must be led and the welfare of the community depends upon the wise choice of leaders. We choose our political leaders in this country in the most democratic manner, by what is practically universal suffrage, and this fact makes it all the more imperative for us to insist upon universal education, otherwise we can hardly hope to choose wisely.

What we want most, however, are leaders of a very different kind from those who hold the reins of government or sit in parliament; leaders who have qualified themselves by laborious preparation for the great work of education—which is merely another word for leading—and whose ideals are very different from those of the average politician; who realise that the welfare of mankind depends more upon the pursuit of truth, love and beauty than upon the extension of commerce and the accumulation of material wealth.

Such leaders will not claim to be infallible and will not expect us to agree with them on every point, for they will know better than anyone else how often the heresy of to-day becomes the orthodoxy of to-morrow, and will estimate dogmatic teaching of every description at its true value. They will understand that we are all learners together; that the only difference between teacher and pupil is that one has got a little further along the road than the other and that that fact constitutes his sole claim to leadership.

I hope I have already made it sufficiently clear that this must not be taken to imply that all men are capable of reaching the same level of mental and moral attainment. There is no such thing as equality in this illogical world, and if there were it would be an uncommonly dull place to live in, with few, if any opportunities of exercising the highest faculties that we possess. These faculties themselves, like the sparks struck from a flint, are the outcome of the constant friction that arises in the struggle for existence. We cannot do away with this

friction if we would; it is a necessary condition of progress, but we can see to it that it is not allowed to kindle flames that will consume all that makes life worth living.

In conclusion, the ideas which I have endeavoured to place before you to-night may be summed up in a very few words. The great principle of evolution, as I see it, whether we regard the individual, the community or the race, consists in sacrifice and re-birth at more or less frequent intervals—sacrifice of all those accretions which have become effete or developed beyond the limits of usefulness, and re-birth by making a fresh start with a clean sheet. This applies to mankind to-day just as it has done in the past to the lower animals, but the great distinguishing feature of the human race is the power of foreseeing, at any rate to some extent, the future, and of deliberately choosing the path of progress. That power, however, is as yet but little developed. It must be developed by education, and, above all, if the real welfare of the great mass of mankind is to be attained, the ideals at which we aim will have to be very different from what they are at present. Otherwise much that is well worth saving will be involved in the general sacrifice and civilisation will have to go back a long way indeed before it can make a fresh start.